

Appln No. 09/636,000
Amdt date May 3, 2004
Reply to Office action of March 1, 2004

REMARKS/ARGUMENTS

Claims 1 - 12 are pending in this application. In the final Office action dated March 1, 2004, the Examiner allowed claims 8 - 10 and rejected claims 1 - 5, 7, 11 and 12 under 35 U.S.C. § 103. Claim 6 was objected to as being dependent upon a rejected base claim, but was deemed allowable if rewritten in independent form including all limitations of the base claim and any intervening claims. Reconsideration and reexamination are hereby requested.

Of the rejected claims, claims 1 and 11 are independent. Claim 1 was rejected as being unpatentable over Cooper, U.S. Patent No. 5,502,735, in view of Beat, U.S. Patent No. 5,687,352. Claim 11 was rejected as being unpatentable over Jekal, U.S. Patent No. 6,035,428, in view of Beat, U.S. Patent No. 5,687,352.

Regarding claim 1, in the final Office action the Examiner states, in part, at pages 2 - 4:

As stated in the previous office action, Cooper doesn't disclose computing the branch metric parameter calculations with a Grey code. Beat discloses this in column 2, lines 22-33. The Grey code has the property that only one bit of the binary sequence is changed in going from one state to the next. The combination teaches calculating a branch metric parameter by changing only one bit (a single addition). For these reasons and the reasons stated previously, the rejections of the claims are maintained.

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By changing states of the binary sequence by changing only one bit on any one transition, components of the circuit are eliminated and the effective speed of the circuit is increased (column 2, lines 28-33). For this reason, it would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the method of changing transitions of Beat into the detector of Cooper.

Regarding claim 11, the Examiner presents similar arguments in the final Office action at pages 3 and 6 - 7 regarding Jekal and Beat.

Applicant respectfully submits that claims 1 and 11 are patentable over the cited references because there was no motivation in the art to combine these references in the claimed manner. First, the references do not provide such teaching. As Applicant stated in the prior Amendment, Beat does not teach or suggest that the disclosed Grey scale circuit may be advantageously applied to MLSE as claimed. In addition, neither Cooper nor Jekal teach that a Grey scale may advantageously be incorporated into the respective disclosed systems as claimed.

As best understood, the Examiner is contending that the required motivation to combine is provided because after the references are combined, the resultant combination provides several advantages. Specifically, the Examiner notes that components may be eliminated and the speed of the circuit increased.

Appln No. 09/636,000

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Applicant respectfully submits that this is not and cannot be the standard for obviousness. If it was, every invention that offered any improvement in reduced component count or increased speed would be deemed obvious by this test.

Applicant submits that the proper standard for obviousness is whether there is prior motivation to combine the circuit of Beat with respective circuits in Cooper or Jekal to provide the claimed invention. For example, whether a person skilled in the art would truly be motivated to consider Beat and whether that person would readily understand specifically which part of Beat should be applied to a specific part of Cooper or Jekal to provide the claimed invention. The Examiner has not cited any art or general knowledge in the art that provides any true motivation to combine these references.

Initially, Applicant notes that Beat is not directed to the field of signal processing. Hence, Applicant submits that if one skilled in the art was attempting to improve a signal processing circuit, he or she would not have been motivated to refer to Beat for suggestions. In addition, the Examiner has not cited any references or general knowledge in the art that provides proper motivation to combine a specific portion of Beat with any specific portions of Cooper or Jekal in a manner that provides the specific structure and methods claimed.

Applicant has invented improved MLSE techniques as described in claims 1 and 11 that provide certain advantages over conventional systems. The specific combinations claimed by Applicant to obtain these advantages are not taught or suggested by the cited references. Accordingly, Applicant respectfully

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submits that the claimed inventions are not obvious in view of the cited references.

Claims 2 - 5 and 7 that depend on claim 1 and claim 12 that depends on claim 11 also are patentable over the cited references for the reasons set forth above. In addition, these dependent claims are patentable over these references for the additional limitations that the dependent claims contain.

In view of the above remarks it is submitted that the claims are patentably distinct over the cited references and that all the rejections to the claims have been overcome. Reconsideration and reexamination of the above application is requested.

Respectfully submitted,
CHRISTIE, PARKER & HALE, LLP

By 

Stephen D. Burbach
Reg. No. 40,285
626/795-9900

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MAY 3 2004

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Date: May 3, 2004

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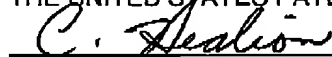
Art Unit: 2631

Examiner: Kevin Michael Burd

Phone: (703) 305-3800

From: Stephen D. Burbach
Reg No. 40,285Re: Application No. 09/636,000
Filed August 9, 2000
Entitled MAXIMUM LIKELIHOOD SEQUENCE ESTIMATOR WHICH
COMPUTES BRANCH METRICS IN REAL TIME

File: 50980/RJP/B600

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350 West Colorado Boulevard
Post Office Box 7068
Pasadena, CA 91109-7068
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